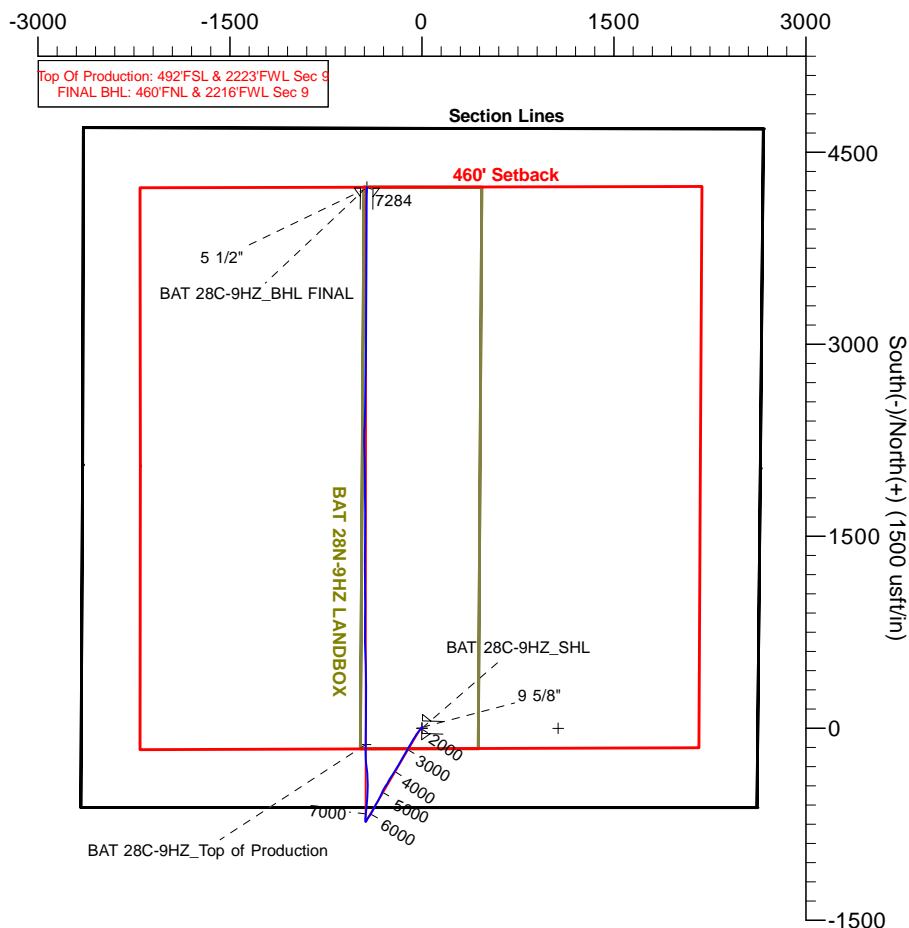


US ROCKIES WATTENBERG PLANNING

Project: WELD-NAD83-UTMFT13N
 Site: 1N-65W-09 Bat Pad
 Well: BAT 28C-9HZ
 Wellbore: Plan A
 Design: PDD Actual Surveys

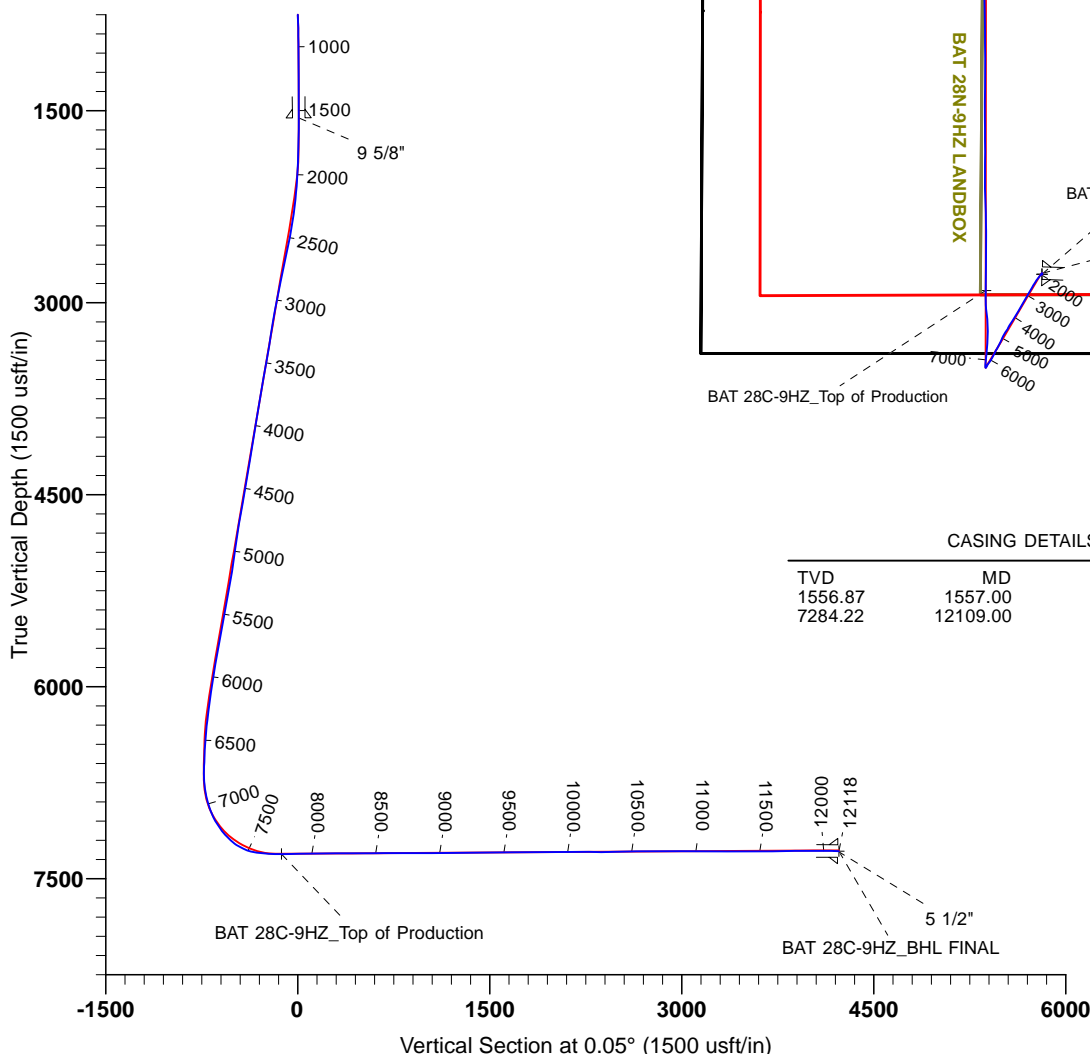


West(-)/East(+) (1500 usft/in)



FORMATION TOP DETAILS

TVDPATH	MDPATH	FORMATION	DIPANGLE	DIPDIR
6933.37	7019.00	SSPG	-0.37	0.05
6957.00	7044.00	NBRR	-0.37	0.05
7067.77	7167.00	B470_B_CK	-0.37	0.05
7142.41	7259.00	N700_C_CK	-0.37	0.05
7277.78	7488.00	FRHS	-0.37	0.05



CASING DETAILS

TVD	MD	Name	Size
1556.87	1557.00	9 5/8"	9-5/8
7284.22	12109.00	5 1/2"	5-1/2

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
1N-R65W-Sec. 9_Section lines	-25.00	-0.34	1063.82	14548919.51	1734104.05	40.060443	-104.665168	Polygon
BAT 28C-9HZ_SHL	0.00	0.00	0.00	14548915.90	1733040.23	40.060444	-104.668970	Point
BAT 28C-9HZ_Landing Diagram	9.00	0.00	0.00	14548915.90	1733040.23	40.060444	-104.668970	Polygon
BAT 28C-9HZ_BHL FINAL	7284.30	4227.81	-430.34	14553142.08	1732594.17	40.072054	-104.670508	Point
BAT 28C-9HZ_Top of Production	7307.56	-126.49	-439.97	14548787.77	1732600.73	40.060097	-104.670542	Point



Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well BAT 28C-9HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	4931+25 @ 4956.00usft (HP311)
Site:	1N-65W-09 Bat Pad	MD Reference:	4931+25 @ 4956.00usft (HP311)
Well:	BAT 28C-9HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	PDD Actual Surveys	Database:	EDM 5000 MultiUser DB

Project	WELD-NAD83-UTMFT13N		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Zone 13N (108 W to 102 W)		

Site	1N-65W-09 Bat Pad, centered on the 3N1				
Site Position:		Northing:	14,548,915.67 usft	Latitude:	40.060444
From:	Lat/Long	Easting:	1,732,980.35 usft	Longitude:	-104.669184
Position Uncertainty:	2.68 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.21 °

Well	BAT 28C-9HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,548,915.90 usft	Latitude:	40.060444
	+E/-W	0.00 usft	Easting:	1,733,040.23 usft	Longitude:	-104.668970
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	4,931.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/20/2014	8.33	66.68	52,609

Design	PDD Actual Surveys				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00		0.05

Survey Program	Date	6/4/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
20.00	1,522.00	Cathedral MWD Surface (Plan A)	APC_ISCWSA REV 2 MWD	Fixed:v2:standard declination	
1,666.00	7,806.00	PDD MWD+IFR1 Vert/Curve (Plan A)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	
7,900.00	12,058.00	PDD MWD+IFR1 Lateral (Plan A)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	
12,118.00	12,118.00	PDD Projection to Bit (Plan A)	APC_BLIND	OWSG BLIND	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
BAT 28C-9HZ_SHL Rev-A.0 - 1N-R65W-Sec. 9_Section lines										
9.00	0.00	0.00	9.00	0.00	0.00	0.00	0.00	0.00	0.00	
BAT 28C-9HZ_Landing Diagram										
20.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	
105.00	0.10	98.40	105.00	-0.01	0.07	-0.01	0.12	0.12	0.00	
169.00	0.40	145.80	169.00	-0.20	0.25	-0.20	0.53	0.47	74.06	

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well BAT 28C-9HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	4931+25 @ 4956.00usft (HP311)
Site:	1N-65W-09 Bat Pad	MD Reference:	4931+25 @ 4956.00usft (HP311)
Well:	BAT 28C-9HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	PDD Actual Surveys	Database:	EDM 5000 MultiUser DB

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
228.00	1.10	125.60	227.99	-0.70	0.83	-0.70	1.25	1.19	-34.24
287.00	1.00	135.90	286.98	-1.40	1.65	-1.40	0.36	-0.17	17.46
345.00	0.20	282.80	344.98	-1.74	1.90	-1.74	2.02	-1.38	253.28
409.00	0.70	245.40	408.98	-1.88	1.44	-1.88	0.87	0.78	-58.44
472.00	0.70	331.80	471.98	-1.70	0.91	-1.70	1.52	0.00	137.14
536.00	0.60	314.80	535.97	-1.12	0.48	-1.12	0.34	-0.16	-26.56
599.00	0.60	355.40	598.97	-0.56	0.22	-0.56	0.66	0.00	64.44
662.00	0.90	317.30	661.96	0.13	-0.14	0.13	0.90	0.48	-60.48
726.00	0.80	351.40	725.96	0.94	-0.55	0.94	0.79	-0.16	53.28
790.00	1.20	332.60	789.95	1.98	-0.92	1.98	0.80	0.63	-29.38
854.00	0.90	13.90	853.94	3.06	-1.11	3.06	1.24	-0.47	64.53
918.00	1.20	30.30	917.93	4.13	-0.65	4.13	0.66	0.47	25.63
982.00	0.90	38.50	981.92	5.10	0.00	5.10	0.52	-0.47	12.81
1,046.00	1.00	35.60	1,045.91	5.95	0.64	5.95	0.17	0.16	-4.53
1,109.00	0.90	54.60	1,108.90	6.68	1.36	6.68	0.52	-0.16	30.16
1,174.00	1.10	62.50	1,173.89	7.27	2.33	7.27	0.37	0.31	12.15
1,237.00	0.60	45.00	1,236.88	7.78	3.10	7.78	0.89	-0.79	-27.78
1,301.00	0.40	57.30	1,300.88	8.14	3.53	8.14	0.35	-0.31	19.22
1,365.00	0.40	291.70	1,364.88	8.34	3.51	8.34	1.11	0.00	-196.25
1,428.00	0.50	276.20	1,427.88	8.45	3.03	8.45	0.25	0.16	-24.60
1,491.00	0.40	271.10	1,490.87	8.48	2.54	8.49	0.17	-0.16	-8.10
1,522.00	0.80	276.20	1,521.87	8.51	2.21	8.51	1.30	1.29	16.45
1,557.00	0.79	271.81	1,556.87	8.54	1.73	8.54	0.18	-0.02	-12.56
9 5/8"									
1,666.00	0.80	258.00	1,665.86	8.41	0.23	8.41	0.18	0.01	-12.67
1,760.00	2.30	219.50	1,759.82	6.82	-1.61	6.82	1.86	1.60	-40.96
1,949.00	2.90	210.70	1,948.63	-0.22	-6.47	-0.23	0.38	0.32	-4.66
2,138.00	6.00	218.80	2,137.04	-12.03	-15.10	-12.05	1.67	1.64	4.29
2,327.00	11.10	217.50	2,323.88	-34.18	-32.37	-34.21	2.70	2.70	-0.69
2,516.00	13.60	212.30	2,508.49	-67.40	-55.33	-67.45	1.45	1.32	-2.75
2,705.00	12.70	210.10	2,692.54	-104.16	-77.62	-104.23	0.54	-0.48	-1.16
2,894.00	13.70	210.80	2,876.54	-141.36	-99.50	-141.45	0.54	0.53	0.37
3,083.00	11.60	208.60	3,060.94	-177.27	-120.06	-177.38	1.14	-1.11	-1.16
3,272.00	9.90	207.20	3,246.62	-208.41	-136.58	-208.53	0.91	-0.90	-0.74
3,461.00	11.20	211.80	3,432.43	-238.46	-153.68	-238.59	0.82	0.69	2.43
3,650.00	11.40	210.00	3,617.76	-270.24	-172.70	-270.39	0.21	0.11	-0.95
3,839.00	11.70	210.50	3,802.93	-302.92	-191.76	-303.09	0.17	0.16	0.26
4,028.00	11.30	213.20	3,988.14	-334.93	-211.63	-335.11	0.35	-0.21	1.43
4,217.00	10.90	215.00	4,173.61	-365.06	-232.02	-365.27	0.28	-0.21	0.95
4,406.00	9.80	208.70	4,359.53	-393.81	-249.99	-394.03	0.83	-0.58	-3.33
4,594.00	13.30	209.80	4,543.70	-426.62	-268.43	-426.85	1.87	1.86	0.59
4,783.00	10.20	214.10	4,728.72	-459.35	-288.62	-459.60	1.70	-1.64	2.28
4,971.00	9.50	209.10	4,913.95	-486.69	-305.50	-486.96	0.59	-0.37	-2.66
5,160.00	8.70	197.00	5,100.59	-513.99	-317.26	-514.27	1.09	-0.42	-6.40

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well BAT 28C-9HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	4931+25 @ 4956.00usft (HP311)
Site:	1N-65W-09 Bat Pad	MD Reference:	4931+25 @ 4956.00usft (HP311)
Well:	BAT 28C-9HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	PDD Actual Surveys	Database:	EDM 5000 MultiUser DB

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,349.00	12.90	209.00	5,286.22	-546.13	-331.68	-546.42	2.51	2.22	6.35
5,538.00	10.80	210.30	5,471.18	-579.88	-350.84	-580.18	1.12	-1.11	0.69
5,725.00	11.40	203.30	5,654.69	-611.98	-366.99	-612.30	0.79	0.32	-3.74
5,916.00	11.20	212.80	5,842.01	-644.91	-384.51	-645.25	0.98	-0.10	4.97
6,105.00	10.30	210.20	6,027.69	-674.94	-402.95	-675.30	0.54	-0.48	-1.38
6,294.00	8.20	215.80	6,214.22	-700.48	-419.34	-700.85	1.21	-1.11	2.96
6,483.00	5.30	206.10	6,401.90	-719.26	-431.06	-719.63	1.64	-1.53	-5.13
6,664.80	2.30	228.61	6,583.28	-729.21	-437.50	-729.60	1.81	-1.65	12.38
BAT 28C-9HZ_NP Rev-A.0									
6,672.00	2.20	230.70	6,590.48	-729.40	-437.71	-729.78	1.81	-1.41	29.05
6,767.00	2.10	230.80	6,685.42	-731.65	-440.47	-732.04	0.11	-0.11	0.11
6,861.00	7.30	1.60	6,779.19	-726.76	-441.64	-727.15	9.38	5.53	139.15
6,956.00	12.90	0.00	6,872.68	-710.11	-441.48	-710.50	5.90	5.89	-1.68
7,019.00	18.06	2.51	6,933.37	-693.31	-441.05	-693.70	8.25	8.18	3.99
SSPG									
7,044.00	20.11	3.16	6,957.00	-685.15	-440.64	-685.54	8.25	8.21	2.59
NBRR									
7,050.00	20.60	3.30	6,962.62	-683.07	-440.52	-683.45	8.25	8.21	2.29
7,145.00	29.10	7.80	7,048.76	-643.42	-436.42	-643.80	9.16	8.95	4.74
7,167.00	31.33	7.68	7,067.77	-632.45	-434.93	-632.83	10.16	10.16	-0.53
B470_B_CK									
7,208.00	35.50	7.50	7,101.98	-610.07	-431.95	-610.45	10.16	10.16	-0.45
7,239.00	37.90	4.00	7,126.84	-591.64	-430.11	-592.02	10.27	7.74	-11.29
7,259.00	39.83	2.98	7,142.41	-579.12	-429.34	-579.49	10.19	9.67	-5.12
N700_C_CK									
7,271.00	41.00	2.40	7,151.54	-571.35	-428.98	-571.72	10.19	9.71	-4.80
7,302.00	44.10	2.70	7,174.38	-550.41	-428.05	-550.78	10.02	10.00	0.97
7,334.00	47.30	4.40	7,196.73	-527.55	-426.62	-527.93	10.70	10.00	5.31
7,365.00	50.90	4.50	7,217.02	-504.20	-424.80	-504.57	11.62	11.61	0.32
7,397.00	55.70	2.70	7,236.14	-478.60	-423.20	-478.97	15.66	15.00	-5.63
7,428.00	60.80	0.20	7,252.45	-452.26	-422.55	-452.63	17.82	16.45	-8.06
7,460.00	65.00	358.30	7,267.02	-423.78	-422.93	-424.15	14.15	13.13	-5.94
7,488.00	69.79	356.49	7,277.78	-397.97	-424.12	-398.34	18.11	17.09	-6.47
FRHS									
7,491.00	70.30	356.30	7,278.81	-395.16	-424.29	-395.53	18.11	17.13	-6.24
7,522.00	75.50	354.20	7,287.92	-365.64	-426.75	-366.01	17.98	16.77	-6.77
7,553.00	80.90	354.10	7,294.26	-335.46	-429.85	-335.84	17.42	17.42	-0.32
7,585.00	83.10	354.60	7,298.71	-303.93	-432.96	-304.31	7.05	6.88	1.56
7,616.00	84.70	355.00	7,302.01	-273.24	-435.76	-273.62	5.32	5.16	1.29
7,648.00	87.30	356.90	7,304.24	-241.40	-438.01	-241.78	10.05	8.13	5.94
7,711.00	88.40	359.60	7,306.60	-178.48	-439.93	-178.86	4.62	1.75	4.29
7,734.12	88.89	359.92	7,307.15	-155.37	-440.03	-155.75	2.51	2.11	1.37
BAT 28C-9HZ_Top of Production A.0									
7,806.00	90.40	0.90	7,307.60	-83.49	-439.52	-83.87	2.51	2.11	1.37

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well BAT 28C-9HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	4931+25 @ 4956.00usft (HP311)
Site:	1N-65W-09 Bat Pad	MD Reference:	4931+25 @ 4956.00usft (HP311)
Well:	BAT 28C-9HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	PDD Actual Surveys	Database:	EDM 5000 MultiUser DB

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,900.00	91.10	1.00	7,306.37	10.49	-437.96	10.11	0.75	0.74	0.11
7,995.00	90.90	0.70	7,304.71	105.46	-436.55	105.08	0.38	-0.21	-0.32
8,089.00	90.70	0.40	7,303.40	199.45	-435.65	199.07	0.38	-0.21	-0.32
8,184.00	90.50	0.00	7,302.40	294.44	-435.32	294.06	0.47	-0.21	-0.42
8,278.00	90.20	358.40	7,301.83	388.43	-436.63	388.05	1.73	-0.32	-1.70
8,373.00	90.30	358.60	7,301.41	483.40	-439.12	483.01	0.24	0.11	0.21
8,467.00	90.50	358.50	7,300.76	577.36	-441.50	576.98	0.24	0.21	-0.11
8,562.00	90.70	358.20	7,299.76	672.32	-444.23	671.93	0.38	0.21	-0.32
8,656.00	89.70	0.80	7,299.43	766.30	-445.05	765.92	2.96	-1.06	2.77
8,751.00	90.20	0.40	7,299.52	861.30	-444.06	860.91	0.67	0.53	-0.42
8,845.00	90.00	359.80	7,299.35	955.30	-443.89	954.91	0.67	-0.21	-0.64
8,940.00	90.30	359.80	7,299.10	1,050.30	-444.22	1,049.91	0.32	0.32	0.00
9,034.00	90.30	359.20	7,298.61	1,144.29	-445.04	1,143.90	0.64	0.00	-0.64
9,129.00	90.30	359.40	7,298.11	1,239.28	-446.20	1,238.89	0.21	0.00	0.21
9,223.00	90.50	0.50	7,297.46	1,333.28	-446.29	1,332.89	1.19	0.21	1.17
9,318.00	90.70	0.90	7,296.46	1,428.27	-445.13	1,427.88	0.47	0.21	0.42
9,412.00	90.50	0.50	7,295.48	1,522.25	-443.98	1,521.87	0.48	-0.21	-0.43
9,506.00	90.40	0.00	7,294.74	1,616.25	-443.57	1,615.86	0.54	-0.11	-0.53
9,601.00	90.40	359.80	7,294.08	1,711.25	-443.73	1,710.86	0.21	0.00	-0.21
9,695.00	90.50	359.60	7,293.34	1,805.24	-444.23	1,804.86	0.24	0.11	-0.21
9,789.00	90.40	359.40	7,292.60	1,899.24	-445.05	1,898.85	0.24	-0.11	-0.21
9,884.00	90.60	359.50	7,291.77	1,994.23	-445.96	1,993.84	0.24	0.21	0.11
9,978.00	90.40	358.50	7,290.95	2,088.21	-447.60	2,087.82	1.08	-0.21	-1.06
10,073.00	90.50	358.60	7,290.20	2,183.18	-450.00	2,182.78	0.15	0.11	0.11
10,167.00	89.00	0.40	7,290.61	2,277.17	-450.82	2,276.77	2.49	-1.60	1.91
10,262.00	89.40	2.50	7,291.94	2,372.12	-448.42	2,371.73	2.25	0.42	2.21
10,357.00	91.30	1.40	7,291.36	2,467.06	-445.19	2,466.67	2.31	2.00	-1.16
10,451.00	91.20	1.00	7,289.31	2,561.01	-443.22	2,560.63	0.44	-0.11	-0.43
10,546.00	91.10	1.00	7,287.40	2,655.98	-441.56	2,655.59	0.11	-0.11	0.00
10,640.00	90.60	0.70	7,286.01	2,749.96	-440.17	2,749.57	0.62	-0.53	-0.32
10,735.00	90.50	0.90	7,285.10	2,844.95	-438.84	2,844.56	0.24	-0.11	0.21
10,829.00	90.20	0.60	7,284.52	2,938.94	-437.61	2,938.55	0.45	-0.32	-0.32
10,924.00	89.50	0.10	7,284.77	3,033.93	-437.03	3,033.55	0.91	-0.74	-0.53
11,019.00	90.20	1.20	7,285.02	3,128.92	-435.95	3,128.54	1.37	0.74	1.16
11,113.00	89.80	0.60	7,285.02	3,222.91	-434.47	3,222.53	0.77	-0.43	-0.64
11,207.00	89.10	359.80	7,285.92	3,316.91	-434.15	3,316.53	1.13	-0.74	-0.85
11,302.00	89.30	359.80	7,287.25	3,411.90	-434.48	3,411.52	0.21	0.21	0.00
11,396.00	89.30	359.60	7,288.40	3,505.89	-434.97	3,505.51	0.21	0.00	-0.21
11,491.00	91.50	0.90	7,287.73	3,600.88	-434.56	3,600.50	2.69	2.32	1.37
11,585.00	91.10	0.40	7,285.60	3,694.85	-433.49	3,694.47	0.68	-0.43	-0.53
11,680.00	90.70	0.10	7,284.11	3,789.83	-433.08	3,789.45	0.53	-0.42	-0.32
11,775.00	90.50	0.10	7,283.12	3,884.83	-432.91	3,884.45	0.21	-0.21	0.00
11,869.00	90.10	0.20	7,282.62	3,978.83	-432.66	3,978.45	0.44	-0.43	0.11
11,964.00	89.50	0.40	7,282.95	4,073.82	-432.17	4,073.44	0.67	-0.63	0.21

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well BAT 28C-9HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	4931+25 @ 4956.00usft (HP311)
Site:	1N-65W-09 Bat Pad	MD Reference:	4931+25 @ 4956.00usft (HP311)
Well:	BAT 28C-9HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	PDD Actual Surveys	Database:	EDM 5000 MultiUser DB

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
12,058.00	89.50	0.80	7,283.77	4,167.81	-431.18	4,167.44	0.43	0.00	0.43	
12,109.00	89.50	0.80	7,284.22	4,218.81	-430.47	4,218.43	0.00	0.00	0.00	
5 1/2"										
12,118.00	89.50	0.80	7,284.30	4,227.81	-430.34	4,227.43	0.00	0.00	0.00	
BAT 28C-9HZ_BHL Rev-A.0										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,557.00	1,556.87	9 5/8"	9-5/8	12-1/4	
12,109.00	7,284.22	5 1/2"	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
7,019.00	6,933.37	SSPG		-0.37	0.05	
7,044.00	6,957.00	NBRR		-0.37	0.05	
7,167.00	7,067.77	B470_B_CK		-0.37	0.05	
7,259.00	7,142.41	N700_C_CK		-0.37	0.05	
7,488.00	7,277.78	FRHS		-0.37	0.05	